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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/789,586	02/27/2004	Siegfried Gronbach	Gronbach 1-2	7784

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SHREWSBURY, NJ 07702

EXAMINER
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PHAN, HANH

ART UNIT	PAPER NUMBER
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2613

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/22/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary****Application No.**

10/789,586

**Applicant(s)**

GRONBACH ET AL.

**Examiner**

Hanh Phan

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2613

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 February 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                        |                                                                   |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____                                                            | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2 and 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kimmitt et al (Pub. No.: US 2003/0175037 cited by applicant) in view of Wang (US Patent No. 7,184,671).

Regarding claims 1 and 6, referring to Figures 5 and 6, Kimmitt et al teaches an optical return-to-zero transmitter comprising:

means (i.e., continuous wave (CW) light is produced by a laser 34 and a Pulse Modulator (PM) 36, Fig. 5) for providing a pulsed optical signal for producing a series of optical pulses (i.e., page 1, paragraphs [0008]-[0009] and page 3, paragraphs [0036]-[0039]);

an optical modulator (i.e., data modulator 38, Fig. 5) arranged to receive a non-return-to-zero electrical data signal (i.e., data signal 56, Fig. 5) and a bias signal (i.e., bias signal 46, Fig. 5), to modulate said optical signal with said data signal (i.e., page 1, paragraphs [0008]-[0009] and page 3, paragraphs [0036]-[0039]);

whereby the optical signal providing means and the modulator provide a return-to-zero optical output signal modulated with the data signal(i.e., Fig. 5, page 1, paragraphs [0008]-[0009] and page 3, paragraphs [0036]-[0039]);

means (i.e., modulator controller 42, Fig. 5) for controlling the difference in phase between the pulsed optical signal and the data signal in response to a phase control signal (i.e., Figs. 5 and 6, page 3, paragraphs [0036]-[0040], page 4, paragraphs [0041]-[0052] and page 5, paragraphs [0053]-[0058]) ;

means (i.e., modulator controller 42, Figs. 5 and 6) for adding a first dither signal to the difference in phase and a second dither signal to the bias signal (i.e., Figs. 5 and 6, page 3, paragraphs [0036]-[0040], page 4, paragraphs [0041]-[0052] and page 5, paragraphs [0053]-[0058]);

means (i.e., modulator controller 42 comprising a photodetector 58, Figs. 5 and 6) for monitoring the amplitude of variations in the power of the optical output signal corresponding to cross-modulation of the first and second dither signal frequencies (i.e., Figs. 5 and 6, page 3, paragraphs [0036]-[0040], page 4, paragraphs [0041]-[0052] and page 5, paragraphs [0053]-[0058]); and

means (i.e., modulator controller 42, Figs. 5 and 6) responsive to the monitored amplitude for adjusting the phase control signal to maintain phase synchronization between the pulsed optical signal and the data signal (i.e., Figs. 5 and 6, page 3, paragraphs [0036]-[0040], page 4, paragraphs [0041]-[0052] and page 5, paragraphs [0053]-[0058]).

Kimmitt et al differs from claims 1 and 6 in that he does not specifically teach the second dither signal having a different frequency than the first dither signal. Wang, from the same field of endeavor, likewise teaches an optical return-to-zero transmitter (Figure 3). Wang further teaches the second dither signal having a different frequency than the first dither signal (i.e., Figs. 3 and 5B, col. 8, lines 58-67, col. 9, lines 1-53 and col. 12, lines 44-47). Based on this teaching, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the second dither signal having a different frequency than the first dither signal as taught by Wang in the system of Kimmitt et al. One of ordinary skill in the art would have been motivated to do this since allowing reducing the interference between the signals and reducing the distortion of the signal.

Regarding claim 2, Kimmitt et al further teaches means for providing a pulsed optical signal comprises:

means (i.e., laser 34, Fig. 5) for providing a continuous optical signal;

a second optical modulator (i.e., Pulse Modulator 36, Fig. 5)

arranged to receive a clock signal to modulate the optical signal with pulses (i.e., page 1, paragraphs [0008]-[0009] and page 3, paragraphs [0036]-[0039]).

Regarding claims 4 and 7, Kimmitt et al further teaches the optical modulators are Mach-Zehnder modulators (i.e., page 6, paragraph [0067]).

Regarding claims 5 and 8, the combination of Kimmitt et al and Wang teaches the frequency of said second dither signal is substantially lower than the frequency of the first dither signal, and said means for monitoring the amplitude comprises first

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means for monitoring a first amplitude, being the amplitude of variations in the power of the optical output signal at the frequency of the first dither signal and second means for monitoring the amplitude of variations of said first amplitude at the frequency of the second dither signal (i.e., Figs. 3 and 5B of Wang, col. 8, lines 58-67, col. 9, lines 1-53 and col. 12, lines 44-47)

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kimmitt et al (Pub. No.: US 2003/0175037 cited by applicant) in view of Wang (US Patent No. 7,184,671) and further in view of Sikora (US Patent No. 6,952,534).

Regarding claim 3, the combination of Kimmitt et al and Wang teaches all the aspects of the claimed invention as set forth in the rejection to claim 1 above except fails to specifically teach the second optical modulator is connected downstream of the optical modulator arranged to receive the non-return-to-zero electrical data signal. Sikora, from the same field of endeavor, likewise teaches an optical return-to-zero transmitter (Figures 1 and 2). Sikora further teaches the second optical modulator is connected downstream of the optical modulator arranged to receive the non-return-to-zero electrical data signal (i.e., Figs. 1 and 2, col. 6, lines 58-67, col. 9, lines 1-53 and col. 12, lines 44-47). Based on this teaching, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the second optical modulator is connected downstream of the optical modulator arranged to receive the non-return-to-zero electrical data signal as taught by Sikora in the system of the combination of Kimmitt et al and Wang . One of ordinary skill in the art would have been

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motivated to do this since allowing generating return-to-zero optical data in a digital lightwave communication system.

**Conclusion**

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Fuller et al (US Patent No. 6,671,079) discloses an optical transmitter.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

  
**HANH PHAN**  
**PRIMARY EXAMINER**